

City of Saint Paul

Department of Public Works

Standard Specifications for

Constructing and Repairing Private Sewer

Connections

January 1, 2006

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Connections

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I hereby certify that the specifications contained in the City of Saint Paul Department of Public Works Standard Specifications for Constructing and Repairing Private Sewer Connections, dated January 1, 2006, were prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota.

Michael G Kassan, Jr.

Sewer Utility

Date: December 14, 2005

Registration No. 18570

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City of Saint Paul Standard Specifications for Constructing and Repairing Private Sewer Connections

1.00 GENERAL

1.01 INTRODUCTION

These specifications, rules, regulations and conditions as herein set forth shall govern the construction and repair of connections to the City of Saint Paul's public sewer system. They are directed towards House Drain Contractors; however, they also apply to property owners, plumbers, city forces and anyone else doing construction of or repairs to private connections to the St. Paul sewer system.

All House Drain Contractors bidding sewer work within the city limits of the City of Saint Paul shall bid such work in accordance with these specifications. No variations from these specifications will be permitted except by official notice to all House Drain Contractors in writing from the Sewer Utility or by an individual variance that may be granted on a case by case basis by the Sewer Utility.

1.02 DEFINITIONS

House Drain Contractor: The term "House Drain Contractor" or "Contractor" is understood to mean any person licensed by Saint Paul's Department of License Inspection and Environmental Protection to build or repair that portion of the private house or building sewer extending from within the property or from the outside of the building to the public sewer or other outlet. Any company engaged in this work must have at least one licensed House Drain Contractor employed. A license holder is responsible for training his company's work crews and supervising their work so it complies with the requirements of these specifications.

LIEP: Saint Paul's Department of License Inspection and Environmental Protection.

Paving Connection: it is a section of sewer lateral constructed from the Public Sewer to the property line (usually) during a street paving project. It is owned and maintained by the City. Once a property owner connects to it, ownership of the Paving Connection transfers to the property owner.

Person: any individual or entity. The masculine gender shall include the feminine; the singular shall include the plural where indicated by the context.

Public Sewer: a sanitary or storm sewer in which all owners of abutting properties have equal rights to and which is owned and controlled by the City of Saint Paul. Public sewers generally have more than one private service connected to it.

Private Sewer Connection: A private sewer connection extends from the foundation or upstream end within the private property to and including its connection to the public sewer. It is also known as a House Sewer Connection or Sewer Lateral.

Specifications: Any and all requirements of the City of Saint Paul Standard Specifications for Constructing and Repairing Private Sewer Connections.

1.03 AUTHORITY

The Saint Paul Legislative Code states the following:

Chapter 76.05: Supervision by Director: The Director of the Department of Public Works shall take the general supervision of all sewers and their connections which now or hereafter may be built by the city or which may be permitted to be

built under their authority, and shall take charge of the building repairs of the same, and all matters in connection with the sewerage of the city.

Chapter 76.13: Inspection, etc.: The Director of Public Works, or duly authorized representative, shall have the right to enter upon the premises drained by any house drain and connected with any public sewer, at all reasonable hours, to ascertain whether the provisions of this or any ordinance in regard to house drains have been complied with and if they shall find that said drain, or its attachments do not conform to the provisions of law in regard thereto, the director or duly authorized representative shall notify the owner of said premises or their agent of this fact. It shall thereupon be the duty of said owner or their agent to cause said drain or its attachments to be so altered, repaired or reconstructed as to make them conform to the requirements of law in regard thereto, within fifteen (15) days from the time of receiving such notice.

1.04 SCOPE

These specifications provide for all matters concerning the regulation of construction quality and performance of private sewer connections and to ensure a standard of workmanship. In the event of any conflict between these specifications and the Saint Paul, Minnesota Charter and Legislative Code, the Saint Paul, Minnesota Charter and Legislative Code shall be the ruling authority.

1.05 AMENDMENTS AND ADDITIONS

Any amendments, changes, modifications or additions to this manual of instructions and specifications will be fully explained and set forth by the Sewer Utility in a letter sent to all House Drain Contractors. All such letters of change will be dated. The date that the new specifications shall become effective will be stated in the letter of notification. The House Drain Contractor is requested to include all such letters in an expandable notebook so he has access to the most current specifications.

1.06 DRAINAGE FOR EVERY BUILDING

The drainage and plumbing system of each new building and of new work installed in an existing building shall be separate from and independent of that of any other building, except as provided below, and every building shall have an independent connection with a public sewer when available.

Where one building stands in the rear of another building on an interior lot and no private sewer is available or can be constructed to the rear building through adjoining alley, courtyard or driveway, the Sewer Utility may grant a variance to extend the house drain from the front building to the rear building and the whole will be considered as one house drain. The extension of the house drain from the front building to the rear building shall be cast iron pipe and a cleanout shall be provided on the inside of the building wall of each building.

1.07 PAYMENTS REQUIRED FOR CONNECTION

The Sewer Utility shall not grant to any person, firm, corporation or association a permit to connect to any sewer of the City of Saint Paul unless the clear water charge, Sewer Availability Charge and current annual installment of any assessment for sewer construction, levied against the subject land as shown by the pertinent public records in the Real Estate Division of Public Works have been fully paid.

1.07 (a) Regular Assessments (St. Paul Legislative Code Chapter 76.02):

Where a large tract of unplatted land or platted land assembled into a single tract by vacation of streets, alleys, or otherwise constituting an area in excess of 10,000 square feet is involved, any assessment of benefits thereon for an existing abutting sewer, for the purposes hereof, shall be deemed limited to a depth of 150 feet from the front line of any such tract, and where a corner tract or platted land is involved and any such assessment of benefits was reduced because of such location, the assessment of benefits shall be deemed

limited to the width of any such tract or parcel, or 50 feet, whichever is the lesser.

1.07 (b) Advance Assessments (St. Paul Legislative Code Chapter 76.03):

Where any tract of land has not been assessed for any existing abutting sanitary sewer and has been excepted from the levy of the assessment for the same, and a new sewer has not been built for which it may be assessed, no permit shall be granted to connect such tract of land with the city sanitary sewer except upon payment of a connection charge in the amount of twenty-five dollars (\$25.00) per assessable front foot to a depth of one hundred fifty (150) feet; except that where a public sewer has been built under private contract and paid for by one (1) or more owners of land thereby served or provided to be served under a permit authorized by the city council, and in accordance with conditions specified in such permit, in any such case a permit shall be granted to connect all or any of the land which such sewer is intended to drain and which abuts on such sewer without payment of a connection charge.

1.07 (c) Clearwater Connection Charge:

A clear water connection permit is required before clear water is connected to a storm sewer. Clearwater is defined as condensate water, cooling water, uncontaminated waste water, and excludes storm or rainwater runoff. It is the Contractor's responsibility to specify a clear water connection permit when requesting a permit, rather than a storm water connection permit. No clear water connection permit shall be granted until the clear water connection charge is paid in full. This charge shall be computed in accordance with Saint Paul Legislative Code, Chapter 76.28.

1.08 CONNECTION CROSSING NON-OWNED PROPERTY

If it becomes necessary for a property owner to build a part of his sewer connection on or across private property owned by another, or across a parcel described for the address of another building owned by the same party, the person desiring to build such a connection must submit proof to the Sewer Utility that an easement for construction, operation and maintenance has been granted by the owner of the property that is crossed by the sewer connection. Such proof shall consist of an easement legally conveyed by an appropriate document and registered in the Office of the Register of Deeds and added to the abstract of the non-owned property that will run forever with the non-owned property.

2.00 LICENSED HOUSE DRAIN CONTRACTORS

2.01 BOARD OF EXAMINERS

There shall be a Board of Examiners consisting of seven members: Three licensed House Drain Contractors; the Sewer Utility Manager or his designate who will serve as Chair; a Sewer Utility Inspector; the Sewer Maintenance Engineer or his designate; and a representative from Sewer Utility Customer Service who will serve as the Secretary of the Board of Examiners.

The House Drain Contractors will be appointed to the Board of Examiners by seniority on a rotating basis by the Chair. One new House Drain Contractor shall be appointed each year and serve for three years. The Contractor Board members shall serve without compensation from the 1st day of May until the last day of April, three (3) years later. In the event that a board member should die, resign or in any way become ineligible, the Sewer Utility Manager shall appoint a qualified replacement to serve the remaining term.

2.02 BOARD MEETINGS

The Chairperson of the Board or any two Board members shall be empowered to call a meeting of the Board whenever, in their opinion there are any questions involving an applicant's qualifications. The Chairperson may also call a meeting for the purpose of reviewing the work record of each licensed House Drain Contractor as their licenses come up for renewal. The Board shall then make a recommendation to renew or deny the license of any Contractor who has a record of violations or problems. A quorum shall require at least two licensed House Drain Contractors and two Sewer Utility employees. It shall be the duty of the Secretary of the Board of Examiners to keep a record of the acts and proceedings of the Board. The Secretary shall also keep a written record of each licensed House Drain Contractor's problems, complaints and deficiencies.

2.03 NEW APPLICATIONS

A person desiring to become a House Drain Contractor in the City of Saint Paul shall make application to the Secretary of the Board of Examiners.

2.03 (a) Licensee Qualifications:

Any person who has had at least three (3) years experience in responsible charge of minor sewer work involving knowledge of trenching, bracing, tunnel work, pipe laying in public streets and all other matters pertaining to and incidental to such sewer work, is eligible to apply for a license.

2.03 (b) Examination by Board:

The Board of Examiners will examine the applicant as to his practical knowledge of the work required for the construction of sewer connections and on his knowledge of the specifications, rules and ordinances governing the work of constructing sewer connections. If applicant meets the experience requirements and passes the written portion of the exam, a copy

of his application and exam score will be forwarded to the Board Members for consideration. Unless two or more of the members call within seven days for a Board meeting to give an oral exam to the applicant or discuss the application and exam, the Secretary of the Board of Examiners will recommend that LIEP issue a license to the applicant.

If LIEP approves the application, a license shall be issued, but only after the execution and filing of the bond and insurance required, and the payment of the fee hereinafter provided. The license issued to the applicant shall authorize him to engage in the business of a House Drain Contractor.

2.03 (c) Fail to Pass Examination:

The Contractors test is closed book and requires a passing score of 70%. Should the applicant fail to pass the examination, he may file a new application and take a second examination. Should he fail the second examination, the applicant will not be eligible for another examination for a period of one year from the date of last examination, at which time he may file a new application.

2.04 BOND AND INSURANCE

2.04 (a) Bond:

Before a House Drain Contractor shall be allowed to engage in business, he shall furnish a surety bond to the City of Saint Paul as required in Section 338.03 (b) of the Saint Paul Legislative Code in a form acceptable to the City Attorney and of a surety acceptable to the Director of LIEP. The bond shall be so conditioned as to guarantee that such work as the House Drain Contractor is to be permitted to perform shall be in accordance with ordinances governing this class of work, and in accordance with these specifications, rules, regulations and conditions; and shall be further conditioned to protect and save harmless the City of Saint Paul from any and

all liability, damage and expense which said city may sustain by reason of authorizing such permit work.

2.04 (b) Insurance:

Before a license is issued, all insurance requirements of the Office of License, Inspection and Environmental Protection shall be met. In the event that the bond or insurance should be canceled, expire, or in any way no longer in affect, the Contractor's license will be held as invalid until proof of approved bond or insurance is again furnished. No work will be allowed in city right-of-way during the interim.

2.05 LICENSE FEE

Each license is for one year and expires on the anniversary of the date when the license was issued. A renewal fee, if paid on or before the expiration date shall be the annual fee as set by LIEP

A license allowed to expire may be reinstated with a penalty of 10% per month, or any portion thereof, up to a maximum of 50% of the current annual license fee. After one year, a license can be obtained only by making application as a new applicant and taking all the required examinations as provided hereafter.

2.06 LICENSE NOT TRANSFERABLE

A House Drain Contractor's license is not transferable. No person holding a license shall allow their name to be used by any other person or company for the purpose of obtaining permits or to do any of the work for which said license is issued. A licensed House Drain Contractor may not sublet any sewer work in the street, alley or easement right-of-way. The Contractor or persons currently in their regular employ must do all such work.

2.07 CAUSE AND POWER TO REVOKE LICENSE

The Office of LIEP has the power to revoke any license with or without recommendation of the Board upon satisfactory proof that the license holder has willfully violated any of the provisions of these specifications, or failed to comply with any of the specifications, rules, regulations, ordinances or conditions prescribed from time to time by the City of Saint Paul.

In addition, the failure to pay, within sixty days, any legitimate claim the City of Saint Paul may have against a House Drain Contractor shall constitute cause for revocation of license.

3.00 PERMITS

3.01 GENERAL

A permit must be obtained from the Department of Public Works Sewer Utility to install, repair or abandon any private sewer that has an outlet or connection to the public sewer. A permit is also required for the extension of an existing sewer service on private or public property that has an outlet or connection to the public sewer. In other words, a permit is required for all sewer work.

The Sewer Utility issues three types of permits. A regular sewer permit is issued for new construction and is designated as an “A” permit. Repair permits are issued for repairs, extensions or alterations made to existing sewer lines. They are designated as “R” permits. A repair abandonment permit, designated as an “RA” permit is issued when an existing connection is no longer in use because of a building demolition, house moving, or any other reason the sewer is no longer needed.

Where paving connections have been installed to the property line or where an old abandoned line is to be reused, the Sewer Utility may issue a permit for the connection to a licensed House Drain Contractor.

Permits are issued subject to City Ordinances and these Specifications. The person, to whom a permit is issued, will be held responsible for any infraction of City Ordinances or these Specifications occurring in the work done under the permit.

3.02 SEWER INFORMATION

To assist the Contractor in preparing bids for building house sewers, a Sewer Permit Clerk, 700 City Hall Annex, (651) 266-6234, will provide all information obtainable from sewer records relative to the depth and size of the public sewer, and the location of wyes.

Sewer record information is also available online. To access that information, the contractor will have to request to access the Sewer Utility's internet portal. To request access, go to: <http://pwportal.ci.stpaul.mn.us>. Follow the instructions on how to register.

The city does not undertake to maintain such records free from all errors and **THE CITY SHALL NOT BE CONSIDERED LIABLE TO CLAIMS FOR DAMAGES ON ACCOUNT OF INACCURACIES** in the records which it maintains. The Contractor and others shall **USE SUCH INFORMATION AT THEIR OWN RISK.**

The Contractor is especially cautioned to verify the depth of the public sewer when connecting to a sewer located in an unimproved street.

The Contractor should, under all conditions, visit the site and check with the utility companies to make their own assessment of the difficulties and construction obstacles that will be encountered in building the connection to the public sewer.

3.03 APPLICATION FOR A PERMIT

A House Drain Contractor may request a permit by phone or in person.

A Site Plan Review requested by the developer and conducted by LIEP will be required in all cases when a building other than a single family or duplex residential building is being constructed or redeveloped. The site plan is usually done by the developer's consultant and must be drawn to an accurate scale. It must show the property covered by the legal description, plus ties to surrounding streets or other datum. It must also show the outside building dimensions, location on the property and the size and location of proposed sewer connections.

For new one and two family residential sewer connections, a site plan shall be given to the Inspector while on site during the inspection.

The House Drain Contractor must provide the Sewer Permit Clerk with the address when applying for a permit. No permit will be issued if a house number has not been issued. An exception to this rule may be to permit construction of a connection to the property line (paving connection) prior to surfacing of the street.

3.04 PERMIT FEES

The permit fee is \$100.00 for the first 80 feet plus \$50.00 per additional 80 feet or fraction thereof. If work is done in the public right of way (ROW), an additional ROW permit fee of \$52.00 is required. One permit is required for each connection to the public main even if there are multiple lines connected to it; for example, several catch basins connected to one pipe flowing to the public storm sewer. Permit

fees are considered due upon the issuance of the permit; however, the Sewer Utility will bill the Contractor once per month for all the permits issued during that month.

A double fee permit will be charged when any work requiring a permit is found to be done before a permit has been issued.

After hours inspections will require a surcharge. They must be scheduled before 2:00 pm on the last working day prior to the requested inspection. All overtime inspections will be charged to the Contractor at a rate of \$75.00 per hour. Evening inspections, before 5:00 pm, will be charged a two hour minimum. Weeknights after 5:00 pm and weekend inspections will be charged a four hour minimum.

3.05 CONNECTION TO METROPOLITAN COUNCIL ENVIRONMENTAL SERVICE'S SEWER

A connection to a Metropolitan Council Environmental Services (MCES) sewer requires a special permit, additional information and an additional inspection performed by an MCES inspector. The Sewer Utility will submit the application on behalf of the House Drain Contractor. Allow at least two weeks for processing.

For the application, the Contractor needs to provide the Sewer Utility with the distance of the connection from the nearest manhole, the invert of the connection and the size and type of material to be used for the connection. No deviation from MCES' specifications can be made without filing a revised application. A copy of the approved permit will be forwarded to the contractor after the Sewer Utility receives it from MCES. The MCES inspector requires at least 48 hours notice for an inspection.

The MCES inspector will inspect the connection to the main and the Saint Paul Sewer Inspector will inspect the entire service. As-built information is required for connections to MCES facilities.

3.06 STATE HIGHWAY RIGHT OF WAY

If Contractors plan on doing work on a State highway, a permit from Mn/DOT is required.

Mn/DOT permits are obtained from the Minnesota Department of Transportation, 395 John Ireland Boulevard, Saint Paul, MN 55155. Generally, they can be obtained by mail. The state permit is free, but in some cases, a bond is required. For information involving main line sewer projects call Len Leitner at (651) 296-8655. For information on service connections or repairs call E. Buck Craig at (651) 582-1447.

3.07 RAMSEY COUNTY STREET RIGHT OF WAY

If Contractors plan on doing work on a Ramsey County highway or road (currently Larpenteur Ave. and McKnight Rd.), a permit from the County is required.

Permits can be obtained from Ramsey County Public Works located at 3377 North Rice Street. The county permits are free, but must be obtained 24 hours before any work is done.

3.08 NO PERMIT TRANSFERS

Only under the discretion of the Sewer Utility shall permit fees be refunded or transferred. It shall be the Licensed House Drain Contractor's responsibility to furnish accurate house number when ordering permits. The Sewer Utility will not accept responsibility for Contractor's mistakes or duplication.

3.09 TIME LIMIT OF PERMITS

The time limit for the contractor to complete their sewer work will be six months from the date of issuance and will apply for all sewer permits, new, repair or abandonment, unless an extension of time has been granted by the Sewer Utility in writing, upon written request. Extensions may be granted for special or unusual cases.

3.10 TEMPORARY DENIAL OF PERMITS

Whenever a Contractor has one or more expired permits (permits that are over six months old), and hasn't completed the work for those permits, additional permits will be denied until the expired permits have been satisfied. Satisfaction could be: completion of the work, including inspection required under the permit; proof that no further work is required under the expired permit; or in extreme cases, a time extension.

Failure to pay within ninety days any legitimate claim the City may have against a House Drain Contractor will constitute cause for denial of additional permits.

Work performed in violation of these Specifications is sufficient evidence of lack of competency of the Contractor. No additional permits will be issued until the work is corrected to the standards contained within these Specifications.

4.00 CONSTRUCTION REQUIREMENTS

4.01 GENERAL

These construction requirements shall apply to the installation, repair or abandonment of any private sewer that has an outlet or connection to the public sewer. It also applies for the extension of an existing sewer service on private or public property that has an outlet or connection to the public sewer. All work shall

be performed in a workmanlike manner with the inside surfaces of the pipes, joints and connections water tight, smooth and uniform. The Contractor must also follow all other applicable regulations including those by Occupational Safety and Health Administration (OSHA), Minnesota Manual on Uniform Traffic Control Devices and Minnesota's One Call Notification System (Gopher State One Call).

4.02 INSPECTION OF CONNECTION

The Department of Public Works Sewer Utility inspector must inspect all work on private sewer connections from the building foundation or upstream end to the public sewer. Before backfilling the trench, but after the pipe has been completely laid and the connection to the sewer has been built, the House Drain Contractor needs to have his work inspected. Inspections can be requested by calling the Sewer Service Desk at 651-266-6234 before 10:00 am for inspection before noon and before 2:00 pm for an afternoon inspection, specifying the approximate time the installation of the pipe will be completed. Normal inspection hours are from 9:00 am to 3:30 pm Monday through Friday. The Director of Public Works or duly authorized representative must approve all overtime or weekend inspections. For after hours inspection fees see Section 3.04.

If any portion of the trench is backfilled before the pipe is inspected, the Contractor shall, at his own expense, remove such backfill so that the entire pipe may be inspected.

The Sewer Utility's inspection of house sewer connections shall not relieve the Contractor from liability to replace or make good any defective workmanship or material, which may be discovered after the inspection has been made.

If an inspection is made, and a Contractor is found to be working in violation of any of these specifications and refuses to correct the violation, the inspector shall contact LIEP who will dispatch an inspector empowered to issue a tag (Chapter 76.08 of City's Legislative Code). Said tag is for a petty misdemeanor and carries a

maximum penalty of \$300.00 or 90 days imprisonment or both, for the first offense and revocation of license for repeat violations.

4.03 SAFETY REQUIREMENTS

Attention is called to the State of Minnesota O.S.H.A. safety requirements. Acceptance, by any city employee, of any unsafe operation does not relieve the Contractor of his responsibility to comply with these requirements. The city inspector shall not be expected to enter into any area or operation that is in violation. The inspector's refusal to enter an unsafe condition to make an inspection, in no way relieves the Contractor of his obligation to have his work inspected. If the unsafe conditions are not promptly corrected, the inspector may contact the State O.S.H.A. Division and request an inspection from them. Citations issued by the State O.S.H.A. Division carry a maximum penalty of \$1,000.00 and 6 months imprisonment. The inspector may report any suspected violations to the state. Possible violations are: unsafe trench; no trench box; ladder availability; faulty air monitoring equipment and not using hard hats or high visibility vests on closed construction sites.

4.04 EXCAVATION

When the street is opened, the paving and earth must be deposited in a manner that will cause the least inconvenience to the public, and provide for the passage of water along the gutters. If the spoil pile will remain overnight, it must be covered and the downstream catch basin protected from eroding soil. At least one-half of the street must be left clear for the passage of vehicles, and bridge ways provided over removed sidewalks for pedestrians. In refilling the trench, the earth must be laid in layers and each layer compacted to prevent after settlement, all this in accordance with the City of Saint Paul, Department of Public Works Specifications for Street Openings (see Appendix B). The paving, flagging and sidewalks are to be restored to at least as good condition as previous to the excavation, and all rubbish and

surplus earth to be immediately removed. Where the provisions of this ordinance conflict with City of Saint Paul, Department of Public Works, Governing Specifications, dated December 16, 1994, the Department of Public Works, City of Saint Paul, Minnesota, Standard Supplemental Specifications for Construction (see Appendix A) shall govern.

Forty-eight hours prior to excavation, Gopher State One Call must be called (651-454-0002) to notify other utilities of proposed work.

4.05 STREET OPENINGS

If excavation is required in an arterial street, the House Drain Contractor is requested to call the ROW Division of Public Works at least 24 hours in advance. The Contractor shall do all street opening work, including excavation, backfilling and resurfacing, in accordance with the provisions of the City of Saint Paul, Minnesota, Department of Public Works, Standard Specifications for Street Openings (see Appendix B).

4.06 DEPTH OF CONNECTION AT PROPERTY LINE

Sanitary sewer connections shall be built so that the invert of the pipe is at least eight feet below curb grade produced to the property line. Where a connection is being made to a sewer in a street that is unimproved but where the grade has been established by the Department of Public Works, the House Drain Contractor will build the connection so that the invert of the pipe is eight feet below the proposed curb elevation produced to the property line. Sanitary sewer connections may be deeper than eight feet if necessary to drain the deeper basements.

If a sanitary sewer connection cannot be placed at the required eight foot depth due to the presence of rock or other utilities, the Contractor must request a variance. If

granted, the pipe shall be insulated as follows using extruded polystyrene foam suitable for underground applications.

If the top of the pipe will be between 5 feet and 8 feet deep, install a 4 feet wide by 2 inch thick insulation board flat centered on the pipe and 6 inches above it. The insulation shall rest on a tamped sand backfill.

If the top of the pipe will be between 4 feet and 5 feet deep, the insulation shall be installed using a box method (see Figure 1). The 3-sided box, opened at the bottom, shall be formed with 3 lengths of 2 inch thick extruded polystyrene foam insulation. The top of the box shall be at least 2 feet wide, centered on the pipe and extending horizontally to the farthest edge of both vertical sides. The vertical sides shall be at least 1 foot high. Insulation shall be installed 6 inches above the top and at least 6 inches from each side of the private sewer. The box shall be filled with tamped sand.

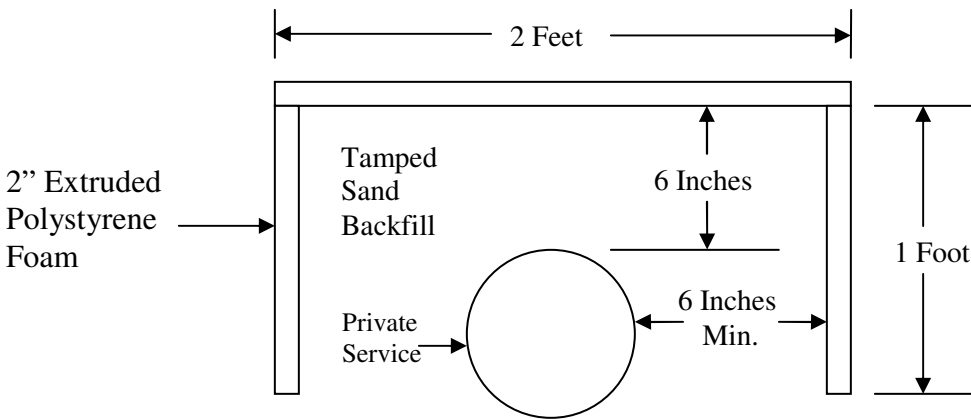


Figure 1: Construction of a 3-sided Insulated Box

4.07 TREES IN THE BOULEVARD

Excavation through tree roots can either kill the tree or weaken it to a point that it could fall over during a windy day. Therefore, whenever a House Drain Contractor bidding on a job encounters a boulevard tree whose roots will be impacted as a result

of excavation, the Contractor is requested to call Saint Paul Forestry at (651) 632-5129 for an onsite inspection. Contractors must contact Saint Paul Forestry at least five working days in advance if construction for non-emergency sewer construction or repairs will result in excavation within:

- * four feet of a boulevard tree 2" to 5" in diameter
- * six feet of a boulevard tree 6" to 12" in diameter
- * eight feet of a boulevard tree 13" to 19" in diameter
- * ten feet of a boulevard tree 20" to 29" in diameter
- * fifteen feet of a boulevard tree 30" and above in diameter.

House Drain Contractors must contact Saint Paul Forestry at the earliest possible time when emergency sewer repairs will necessitate excavation within the above parameters.

4.08 POINT OF CONNECTION TO MAIN SEWER

4.08 (a) Wye Branches:

Wherever a wye branch is provided, the House Drain Contractor shall make the connection to the main sewer at the wye. The Contractor must inspect the wye to verify that it is in good shape. Once a wye is used it becomes the property of the building connected to it. If the wye is not found to be within two feet in either direction of the measurement shown on the records of the department, the House Drain Contractor shall give notice to the Sewer Utility. The Sewer Utility Inspector will then recheck the measurements, and if the measurements are found to be correct, the contractor may construct a suitable connection at his own expense at the discretion of the Sewer Utility Inspector.

Types of Connections When a Wye is not Present

4.08 (b) Any Main with an outside diameter of 25" or less:

Where the connecting pipe's outside diameter is less than half the inside diameter of the sewer main, a CB Saddle or approved equal must be used (Standard Plate 2319B). No concrete should be necessary.

4.08 (c) Mains with an outside diameter greater than 25 inches:

Under the following conditions a House Drain Contractor will be allowed to make a connection by carefully core drilling a hole in the main sewer and inserting a hub in accordance with Standard Plate 2319B:

- a. Where no wye branch has been provided and
- b. Where the connecting pipe's outside diameter is less than half the inside diameter of the sewer main.

All such connections shall be done in such a manner that a minimum amount of damage is caused to the main sewer. A generous cement mortar collar shall be placed around the junction of the hub and the main sewer. The hub pipe must be trimmed to conform to the inside contours of the sewer main.

Kor-N-Seal or its equivalent may be used with approval by the Sewer Utility.

4.08 (d) 8" Clay Pipe:

When the main sewer is clay pipe and eight inches in diameter or less and no longer than two foot lengths, and no wye branches have been provided, the house sewer connection may be made by the House Sewer Contractor by removing a section of the main sewer and replacing it with a section of pipe of like diameter which has a wye branch of the proper size.

A four inch cast iron or PVC sewer pipe may be connected to an eight inch vitrified clay pipe sewer main by carefully core drilling a hole into the main sewer and installing a CB Saddle or approved equal.

4.08 (e) New Connection to Lined Main:

During the process of lining mainline sewers with a cured in place liner, unused wyes, unused paving connections and abandoned connections are typically lined over. When installing a new sewer connection or reconnection to a mainline sewer that has a cured in place liner, the Contractor shall verify whether or not the connection is usable. If it isn't, the Contractor shall core drill through the main and liner to the same diameter of the new connection and install a saddle or hub connection depending on the size of the main (See Standard Plate 2319B). When appropriate to sleeve a previously abandoned pipe to make a connection at a wye that has been lined over, the Contractor must cut a hole in the liner the size of the entire wye opening and file or sand the edge of the liner to a smooth surface. The contractor may then make a connection to the wye.

4.08 (f) Existing Manholes:

No connection to an existing manhole shall be made unless the Sewer Utility grants permission. If a connection is allowed to be made to an existing sanitary manhole, the connection must be core drilled and should enter the manhole no higher than two feet above the bottom of the manhole. When a new connection is to be installed to a manhole deeper than 15 feet, the Contractor may, after approval of the Sewer Utility, construct an outside drop to the manhole (see Standard Plate 2301B). A spillway must be poured at the bottom of the manhole so everything coming from the new connection reaches the flow in the main sewer and not collect in the manhole.

When a storm connection is made to a manhole, the entire connection must be below the Cone Section but it doesn't have to go to bottom of the manhole.

4.09 MANHOLES REQUIRED

When the House Drain Contractor builds a connection to a public sewer other than to an existing wye, the contractor will be required to build a manhole whenever the connecting pipe's outside diameter is half or greater than half the inside diameter of the public sewer.

The materials for the manhole shall conform to the City of Saint Paul standards as described in Department of Public Works, City of Saint Paul, Minnesota, Standard Supplemental Specifications for Construction (see Appendix A). Precast concrete or concrete block manholes may be built. Standard Saint Paul castings must be used in all cases and standard steps (Drawing No. 2209) must be provided at 16 inch centers vertical spacing (see Standard Plates 2101B-2110A).

With the exception of roof drain connections, manholes are required in storm sewer systems, when there is a change in grade or direction.

4.10 PIPE SIZES

The minimum pipe size for the house drain connection shall be four inches inside diameter if the connection is built using cast or ductile iron pipe or PVC. For all other materials, the minimum diameter of the connection pipe shall be six inches.

4.11 MATERIALS

All materials used must meet the minimum requirements of the State of Minnesota Plumbing Code.

The following materials may be used for that part of the connection from the property line to the public sewer:

- a. Extra Strength Vitrified Clay Pipe, ASTM C-700, where the fill over the pipe is less than 20.0 feet.
- b. Reinforced Concrete Pipe, conforming to ASTM C-76 for pipe sizes 12 inches or greater. For the class of RCP, the supplier's recommendation should be used. Class IV pipe shall be the minimum for 12 inch diameter sewers.
- c. Cast Iron Pipe, conforming to ASTM-74. This material is required in the street where the water service is planned to be laid within 10 feet or less of the sewer connection.
- d. Polyvinyl Chloride (PVC) pipe, Schedule 40, C-900 or SDR 26 unthreaded conforming to ASTM Standard D-2665.

Materials other than those listed above may not be used unless the Sewer Utility gives approval for their use in writing.

4.12 METHOD OF LAYING PIPE

All house connections within public streets shall be constructed with the bell end upstream, and laying should proceed in every case from the downstream end to the upstream end. The pipe shall be carefully bedded so that the bottom third of the pipe

rests on undisturbed earth. A space for the bell shall be excavated below the grade for the barrel of the pipe so that when the pipe is in final position, the entire length of the barrel will be uniformly supported by the sub grade. The pipe should be laid so that the line of the pipe enters the main in the direction of the flow. Under no conditions should the line of the sewer drain be built opposed to the direction of the flow in the main sewer.

Sewer pipe shall be laid with full and uniform bearing. If the bottom of the trench is such that proper bearing thereon cannot be obtained, then the House Drain Contractor shall furnish and place pea gravel or sand in the trench so that the pipe may be laid as specified.

Whenever PVC sewer pipe is used for a house sewer connection, the pipe shall be laid in a pea gravel or sand bedding.

The spigot end of bell and spigot pipe shall be inserted into the bell end to the full depth of bell. When laid, the pipe shall form a sewer with a smooth and uniform invert.

4.13 PIPE JOINTS

All pipe joints shall meet the requirements of the State of Minnesota Plumbing Code, unless otherwise changed by these specifications. Only the following listed types of joints may be used:

4.13 (a) Gasket Joints:

Factory fabricated compression joints of approved resilient or rubber materials may be used between lengths of clay or concrete pipe in accordance with ASTM C425.

4.13 (b) Cement Mortar Joints:

Cement mortar joints are only allowed for repairs and connections of existing lines constructed with such joints or when using the hub connection according to Saint Paul Standard Detail Plate No. 2319B. Where permitted, cement mortar joints shall be made in the following manner: a layer of jute, hemp or Ram-Nek® shall be inserted into the base of the annular joint space and packed tightly to prevent mortar from entering the interior of the pipe or fitting. Not more than 25% of the annular space shall be used for jute or hemp. The remaining space shall be filled in one continuous operation with a thoroughly mixed mortar composed of one part cement and two parts sand, with only sufficient water to make the mixture workable by hand. Additional mortar of the same composition shall then be applied to form a one to one slope with the barrel of the pipe. The bell or hub of the pipe shall be left exposed and, when necessary, the interior of the pipe shall be swabbed to remove any mortar or other material that may have found its way into such pipe.

4.13 (c) Caulked Joints:

Joints between cast iron pipes shall be caulked with pure lead, not less than one inch deep. Joints shall be first packed firmly with oakum or hemp to prevent the lead from running through the joint.

4.13 (d) Mechanical Joints:

Mechanical joints in cast iron soil pipe shall be made by means of preformed molded rubber ring, secured by pulling the pipe and fittings together in such a way as to compress the molded rubber ring in a manner that will assure a water tight joint. The rubber sealing ring shall conform to A.S.T.M. 564-65.

4.13 (e) Solvent Welded Joints:

Joints for P.V.C. sewer pipe shall be installed per the manufacturer's instructions for either solvent cement or O-Ring Rubber Gasket Joints.

4.13 (f) Fernco Type:

Rubber sleeves with stainless steel band clamps.

4.14 GRADE OR SLOPE OF CONNECTION

Where possible, the minimum grade on the house drain connection pipe shall be 1/4 inch per linear foot of pipe, or a fall of two feet per 100 feet of connection (a 2% grade). When connecting to a shallow sewer or when the building being connected to the public sewer is below street grade, the slope of the connection may be reduced to 1/8 inch per foot of pipe (a 1% grade).

In all cases where the grade of the pipe will be less than 2%, the House Drain Contractor shall set the grade by laser equipment or other method approved by the Sewer Utility. When practical, the connection shall be built with a uniform grade from the main to the property line and should be built with a uniform grade from the property line to the building.

4.15 PROTECTION OF PIPE

The Contractor shall prevent the entry of dirt or other foreign material into the main sewer during construction. Should any dirt or other material enter the main sewer during construction by accident or otherwise, the Contractor shall remove it without delay. Pipe once laid shall be protected from injury or disturbance from any cause.

4.16 CONNECTIONS TO SANDROCK SEWER

The drill hole or vertical drop pipe shall be located on private property; except that where conditions warrant, the Sewer Utility may approve location of the drill hole within public right-of-way.

The minimum size drill hole through the rock shall be six inches when a four inch inside diameter pipe is installed. The House Drain Contractor shall line the drill hole in all cases. The drill hole shall be lined with cast iron, PVC, or other approved equal material and the liner pipe grouted into place.

A direct connection from the vertical drop pipe to the horizontal line shall be constructed using a long sweep radius bend at the junction of the vertical drop pipe and the horizontal run.

The horizontal drift pipe shall be laid in a bed of concrete with a minimum of 3 inches of concrete placed over the top of the pipe.

The excavation for the tunnel drift shall be carried through on a straight line and grade from the main sewer to the drill hole with a minimum fall of two feet per 100 feet of tunnel drift (see Section 4.14).

Where the main sewer tunnel is lined, and it becomes necessary to cut an opening for the connection, such opening shall be carefully cut and the junction made so as not to impair the stability and efficiency of the main sewer.

When the main sewer is fully lined, a full 8 inch minimum thickness masonry bulkhead shall be constructed in the opening in the wall of the main sewer created for the connection. The bulkhead shall conform to the contour of the main tunnel.

Each day, the House Drain Contractor shall remove all material taken out of the excavation and shall not allow same to accumulate and obstruct the public use of streets. In no case will the House Drain Contractor be permitted to dump excavated material into the main sewer.

Explosives shall not be used except where the rock is too hard to be loosened by mechanical equipment, and only when its use is specifically permitted. When

explosives are used, a Blasting Permit must be obtained from the Department of Public Works.

4.17 CONNECTION TO PAVING CONNECTION

Where the street surface is paved, connections for future use were frequently built under City paving contracts from the main sewer to the property line prior to the paving. If available, the depth of the connection at the property line, the location, size and other pertinent data will be given to the House Drain Contractor. No paving connections over fifty years old will be allowed to be used except with the approval of the Sewer Utility.

Once the House Drain Contractor connects to the Paving Connection, ownership of the Paving Connection transfers to the property owner and the property owner is responsible for all future maintenance and repair.

4.18 REUSE OF EXISTING CONNECTION

Where a building having a connection to the public sewer has been torn down and a new building is being constructed in its place, the abandoned house drain connection that served the previous building may be reused providing it is less than fifty years old and meets all the current requirements of a new connection, with the exception that the pipe depth must be at least six feet measured to the top of pipe at the property line. If the owner elects to reuse the abandoned connection, a regular permit must be taken out. If the abandoned service is less than fifty years old, the line must be televised and reviewed and approved by the Sewer Utility prior to use at the Contractor's cost. Services over fifty years old cannot be reused except at the discretion of the Sewer Utility. If approved, the House Sewer Contractor must inform the property owner that they have ownership and are responsible for the reused pipe.

When reusing an abandoned sand rock drift, a new drill hole is to be constructed downstream of the old drill hole. A bulkhead must then be built in the drift just upstream of the new drill hole see Figure 2). This bulkhead must be of similar construction as used for abandoning sand rock drifts. Details in Standard Plate #2312B must be followed.

4.19 PLUGGING ABANDONED SERVICES

The House Drain Contractor shall plug an abandoned service under a Repair Abandonment Permit. The abandoned service shall be uncovered within 4 feet of the property line and within property boundaries, there plugged and sealed watertight with an approved bulkhead. If an abandoned service is connected to a sewer manhole, the service must be bulkheaded at both the property line and at the manhole. If there is a tree or other obstruction near the property line, the Sewer Utility may require the Contractor to abandon the sewer in the boulevard. It is the Contractor's responsibility to inform the Sewer Utility when these cases arise. Any disturbance within the ROW will necessitate the added cost of a ROW permit.

The Contractor shall leave the trench open at the point where connection is plugged until inspected by the Sewer Utility's House Drain Inspector.

The Sewer Utility reserves the right to require plugging of abandoned services at the main sewer.

Where any public sewer main line is to be abandoned, such work shall be performed in accordance with the current Department of Public Works, City of Saint Paul, Minnesota, Standard Supplemental Specifications for Construction (see Appendix A). Additionally, those pipes in the Public Right of Way having a 12" or larger inside diameter shall be filled with a suitable material, as determined by the Sewer Utility.

In the case of sand rock tunnel connections to the public sewer, the drift shall be completely plugged by constructing an 8" thick masonry or brick bulkhead at the junction of the main tunnel and drift connection. The bulkhead shall completely block the abandoned drift and shall conform to the inside contour of the main sewer. The bulkhead shall be made watertight by plastering the face with 1/4 inch minimum thickness of cement mortar. The drill hole is to be plugged from the surface by excavating down to the rock surface and filling the drill hole with concrete at least four feet into the rock.

Where there is more than one drill hole connection to the same drift, and the upstream drill hole connection is to be abandoned, the drift is to be bulkheaded just upstream of the connection still in use (see Figure 2).

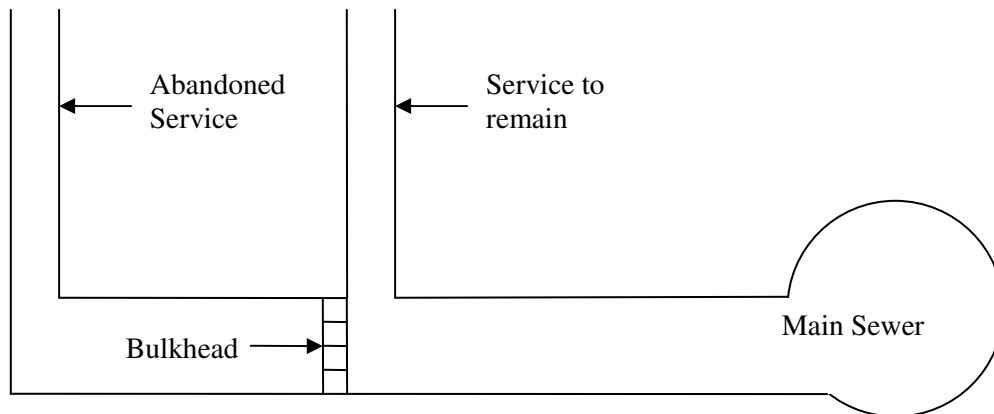


Figure 2: Abandoning an Upstream Drift

Where the connection to be abandoned is downstream of the one still in use, only the unused drill hole needs to be abandoned (see Figure 3).

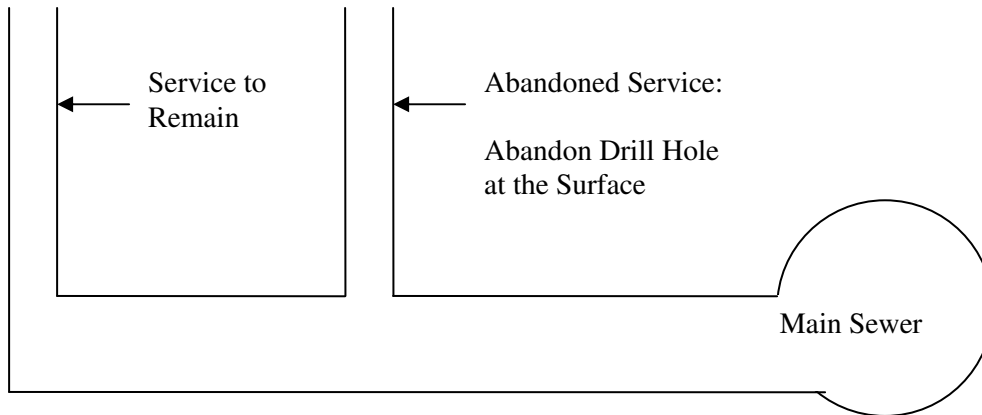


Figure 3: Abandoning a Downstream Drift

If the drill hole to be abandoned has its own drift that branches from the drift that leads to the other connection, abandon the drift by constructing a bulkhead at the junction of the two drifts (see Figure 4).

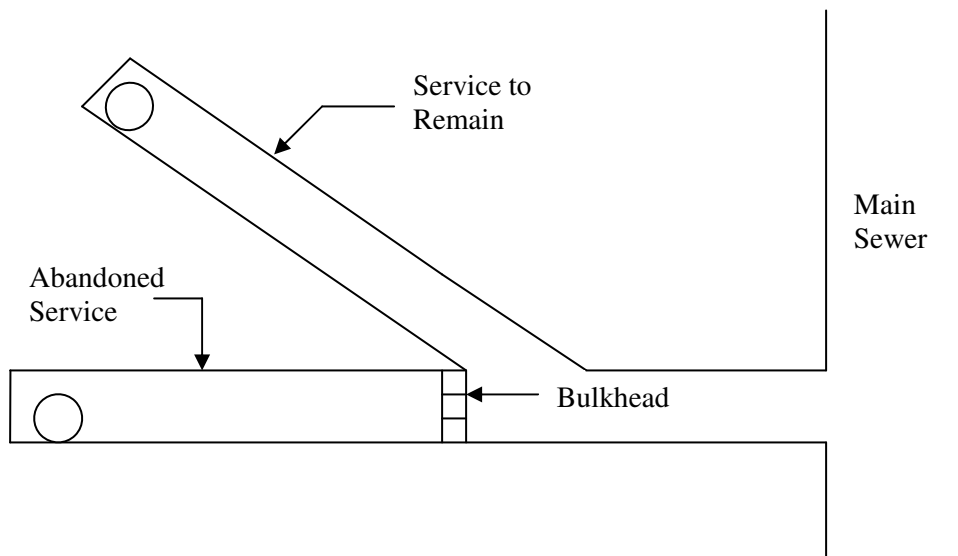


Figure 4: Abandoning a Shared Drift

In all cases, the unused drill hole needs to be abandoned by excavating down to the rock surface and filling the drill hole with concrete at least four feet into the rock.

5.00 MISCELLANEOUS

5.01 SEWER TELEVISIONING

Whenever the Sewer Utility requests that a private service, paving connection or stub be televised, the video may be either a VHS tape or DVD. The video must be in color with adequate lighting, show digital foot measurements and be slowly paced. Suggested speed would be one foot per second. The audio portion has to state the address of the property and include a commentary by the person doing the taping. All requested videos need to be reviewed by the Sewer Utility.

5.02 ENCROACHMENT PERMIT REQUIRED

Whenever a private sewer connection is proposed to cross the boulevard of an adjacent property, an encroachment permit is required. Permits may be obtained in person at the Maps and Records Division of Public Works, Room 140 City Hall. Public Works will notify the adjacent property owner in writing of the proposed work in his boulevard. No work shall proceed until written permission has been received and the encroachment approved. An encroachment permit is not required if all sewer work takes place within the originating property's boulevard or anywhere in the street.

5.03 PROHIBITED WASTE DISCHARGE

Since all sanitary sewers in Saint Paul flow into interceptors owned by the MCES, their discharge rules govern. The following is a portion of the MCES' Waste Discharge Rules for the Metropolitan Disposal System (MDS):

406.00 Prohibited Waste Discharges

No person, except as authorized in a permit, shall discharge or cause to be discharged into public sewers any of the following materials:

406.01 Any combustible, flammable, or explosive solids, liquids, or gases which by their nature or quantity are likely to cause either alone or by interaction with other substances, a fire or explosion or be injurious to Metropolitan Council treatment plant operations. Any liquid exhibiting a closed cup flash point less than 60 degrees Celsius (140 degrees Fahrenheit) is prohibited. At no time shall any reading on a methane-calibrated combustible gas meter, at the point of discharge into public sewers, exceed ten percent of the lower explosive limit. Prohibited materials can include, but are not limited to, gasoline, kerosene, naphtha, benzene, toluene, xylene, ethers, alcohols and ketones.

406.02 Coal tar, asphalt residues, grease, paraffin wax and residues from refining or processing of fuel or lubricating oil.

406.03 Water insoluble oils, including but not limited to, fuel oil, nonbiodegradable cutting oil, lubricating oil, hydraulic oil, mineral oil and motor oil.

406.04 Any wastewater containing fat, wax, tallow, grease, or oil of animal or vegetable origin in excess of 100 milligrams per liter, that is likely to solidify, become viscous, or become water insoluble, and is likely to cause obstruction to the flow in public sewers or cause interference or pass-through.

406.05 Any solid or viscous material in amounts which are likely to cause obstruction to the flow in a public sewer or interference with the operation of public sewers. Prohibited materials include but are not limited to: garbage particles greater than one-half inch in any dimension, animal guts or tissues, bones, body parts, hair, hides or fleshings, entrails, feathers, ashes, sand, spent lime, metal, glass, grass clippings, leaves, rags, spent grains, waste

paper, wood, plastic, and residue from stone, marble, glass or plastic industrial grinding or polishing operations.

406.06 Whole, ground or shredded glassware, needles and other sharps, plastic and textile objects from hospitals, physician and dentist offices, clinics, veterinary facilities, other health care facilities, mortuaries, blood banks, laboratories of any kind and food preparation facilities.

406.07 Any wastewater containing inert suspended or dissolved solids, including, but not limited to, lime slurries, lime residues, or chlorides in such quantities that are likely to cause interference, pass-through or operational problems in public sewers, or when the effect of such disposal into public sewers is the avoidance of off-site solid waste disposal.

406.08 Any material having a corrosive property that is likely to constitute a hazard to operational personnel or cause damage to structures or equipment of public sewers.

406.09 Any wastewater containing toxic or poisonous materials in sufficient quantity, either singly or by interaction with other materials that is likely to cause interference, pass-through or constitute a hazard to humans.

406.10 Any noxious or malodorous solids, liquids, or gases, which, either singly or by interaction with other wastes, are likely to create a public nuisance or hazard to humans or prevent the authorized entry of personnel into public sewers for monitoring, maintenance and repair.

406.11 Any material which is likely to cause excessive discoloration in treatment plant effluent, including but not limited to, dye wastes, vegetable tanning solutions, paint, and printing inks.

406.12 Any material containing foam or foam producing substances in sufficient quantities to cause a public nuisance, operational problems in public sewers or interference or pass-through.

406.13 Wastes, other than domestic wastes, that are infectious except as provided for in an acceptable infectious waste management plan submitted to Minnesota Department of Health or Minnesota Pollution Control Agency pursuant to Minnesota Statutes, sections 116.75 to 116.83.

406.14 Any pretreatment solids from an industrial pretreatment system except as provided in Section 403.00.

406.15 Any wastewater containing added heat or which creates added heat, when such heat causes interference, pass-through or damage to public sewers. In no case shall wastewater be discharged such that the discharge temperature is greater than 65 degrees Celsius (150 degrees Fahrenheit), or the added heat causes, individually or in combination with other wastewater, the influent at any Metropolitan Council treatment plant to have a temperature exceeding 40 degrees Celsius (104 degrees Fahrenheit).

406.16 Any slug or batch discharge of wastewater of such volume or strength that is likely to cause interference, pass-through or operational problems in public sewers.

406.17 Any unpolluted water, including but not limited to, noncontact cooling water, rain water, storm water, groundwater, or water collected from foundation drains, unless there is no prudent and feasible alternative.

406.18 Any material exhibiting a half-life or having radioactive properties that are in noncompliance with limitations established by the United States Nuclear Regulatory Commission, 10 CFR part 20 or Minnesota Rules, chapter 4730.

406.19 Any hazardous waste, as defined by Minnesota Statutes, section 116.06, subdivision 11 and Minnesota Rules, chapter 7045, unless prior approval has been obtained from the Regional Administrator and such discharge does not constitute a violation of local, state or federal law.

406.20 Any waste generated outside the metropolitan area, unless prior approval has been obtained from the Regional Administrator.

406.21 Garbage, discarded material and grease from non-domestic sources which results from the handling, processing, storage, preparation, serving and consumption of food, when the effect of such disposal into public sewers is the avoidance of off-site solid waste disposal; provided, however, that this section does not prohibit sink-fed garbage disposal units used for incidental food waste disposal.

406.22 Any material discharged to public sewers which is likely to cause interference, pass-through, or operational problems at any Metropolitan Council treatment plant, or which violates applicable state or federal laws or requirements.